

**Notice of Allowability**

Application No.

09/826,040

Examiner

Tu T. Nguyen

Applicant(s)

PANTIGNY ET AL.

Art Unit

2877

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/05/2004.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 05 August 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |



### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Khaled Shami on 03/08/2005.

*The application has been amended as follows:*

**Please replace all claims in the file with the following listing of claims:**

### LISTING OF CLAIMS

1. (Original) An image sensor with matrix readout including a matrix of elementary photodetectors (P) connected through at least a bus (Bpel) to a remote integrator (I) converting the signal of each elementary photodetector into a voltage, characterized in that it includes, between the end of the bus and the input of the integrator, an impedance matching device (D) delivering at its output, during the time required for converting a photodetector signal, a variation of charge which



corresponds to an affine function of the charge present at the input of said matching device, wherein this variation of charge is determined by:

$$\int_{t=0}^{t=T_{conv}} I_{inj}(t).dt = \int_{t=0}^{t=T_{conv}} I_{int}(t).dt$$

wherein  $I_{inj}$  is the instantaneous current of the bus, injected at the input of the impedance matching device,  $I_{int}$  is the instantaneous current at the input of the integrator and  $T_{conv}$  is the conversion time.

2. (Original) The image sensor according to claim 1, characterized in that the impedance matching device (D) has a low output capacitance.

3. (Previously presented) The image sensor according to claim 1, characterized in that the impedance matching device is connected as close as possible to the input of the integrator.

4. (Previously presented) The image sensor according to claim 1, characterized in that the impedance matching device includes a common-gate TMOS transistor (T) mounted on the input of the integrator.

5. (Previously presented) The image sensor according to claim 1, characterized in that the impedance matching device includes a common-gate TMOS transistor (T) associated with a feedback amplifier (G).



6. (Original) The image sensor according to claim 1, characterized in that the impedance matching device includes two transistors (T1, T2) and two voltage sources (V1, V2) mounted as a current mirror.

7. (Previously presented) The image sensor according to claim 2, characterized in that the impedance matching device is connected as close as possible to the input of the integrator.

8. (Previously presented) The image sensor according to claim 3, characterized in that the impedance matching device includes a common-gate TMOS transistor (T) mounted on the input of the integrator.

9. (Previously presented) The image sensor according to claim 4, characterized in that the impedance matching device includes a common-gate TMOS transistor (T) associated with a feedback amplifier (G).



### **REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

Claims 1-9 are allowed for reasons of arguments presented by the applicant in the amendment letter received on 08/05/2004.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T. Nguyen whose telephone number is (571) 272-2424. The examiner can normally be reached on T-F 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley Jr. can be reached on (571) 272-2800 Ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu T. Nguyen  
Primary Examiner  
Art Unit 2877

03/12/2005